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ABSTRACT

Today the majority of the United States work force is employed in the production, processing, and dissemination of information. However, the situation with regard to videotex, the medium that served as the basis for predicting an information society, is far from settled. The statistics concerning videotex are impressive, the technology fascinating, and the promise tantalizing. However, there is good reason to doubt that the medium is on the verge of universal availability, much less adoption, and certainly much less dominance. At this time, after all the marketing hyperbole is stripped away, the facts remain that most videotex systems are in the testing stage, are not two-way, and have not yet proven their attractiveness. Many of these alternative ways of gathering information or of conducting transactions are not perceived overwhelmingly by consumers as having advantages over tried and proven methods. While an impressive percentage of potential consumers seem predisposed to adopt videotex, some 40 years of mass media research has shown the difficulty in linking experimental predispositions or attitudes to ultimate behavior in field studies. Despite the failure to link attitudes and behavior, predictions are still being made of a "wired nation," but the information available indicates that this is more charming mythology than fact. (Summaries of videotex usage in Europe, Canada, and the United States are appended). (HOD)

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The Information Society:

Fact or Charming Mythology?

by

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In the early 1970s, many predicted the U.S. was becoming an "information society" in which the dominant industry would be information related, and new media would emerge, gain widespread adoption, and affect traditional media and conventions. Today, the majority of the U.S. work force is employed in the production, processing, and dissemination of information. However, the situation with regard to the medium which served as the basis for prediction -- videotex -- is far from settled. Major impediments to adoption among potential users exist which may or may not be overcome in the near future.

A decade ago, growing awareness of changes in the work force and the potential of emerging media provided a canvas on which grandiose scenarios of a future U.S. society were painted. That society would be characterized by the emergence of a range of text-on television information utilities under the banner "videotex." Furthermore, a majority of U.S. workers would be employed in the production, processing and dissemination of information. That society was termed "post-industrial."[1] More recently, it has been suggested that this new "information society" would be further characterized by having more than 50 percent of the adult population tied to a "vast electronic telecommunications network" at home as well as in the place of employment. Individuals in the new society would be able to receive and send news, data and information through home telecommunications centers. Telebanking, telecourses, televoting, telemetering, telecommuting, telegames, and teleshopping will be common.*

Today, an array of studies indicates that a near-majority of U.S. workers

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See Jerry L. Salvaggio, Telecommunications: Issues and Choices for Society, New York, Longman, 1983, for an overview of related issues.

are laboring in information industries. Porat analyzed labor statistics and found the roots of that shift from manufacturing to information creation and distribution began in the 1950s. By 1970, the shift was pronounced, with nearly half of the total work force employed in information fields. By that time, those workers were also earning slightly more than half of the total labor income (1978, p. 1). Toffler found that by 1980, less than 10 percent were still employed in actual manufacturing, with the rest "providing services and manipulating symbols" (1980, p. 197). The impact of this change was also seen in the amount of expenditures generated by the newly emerged field. Slack set that figure at $53 billion in 1980, estimating that it would reach annual expenditures of more than twice that amount by 1990 (1981, p. 151). A survey by the Brookings Institution supports these findings. Brookings surveyed eleven major industries, and found growth in only two -- banking, and the field of communication (Dizard, 1982, p. 39).

The changes noted in work force activity in the 1950s were accompanied by the emergence and adoption of a major new medium -- cable television. It is this medium, more than any other, on which the predictions for the emergence of an Information Society rest. Cable began in the late 1940s as a means of intercepting television signals and providing improved television reception to rural and mountainous areas.[2] During the 1950s it served basically that simple utilitarian purpose. The field was characterized by small systems, owned by local interests. In the late 1950s and early 1960s, however, the medium was taken over by "a new generation of entrepreneurs."[3] These new cable system owners realized that cable held the potential for offering more than mere improved reception; they foresaw a day when home subscribers would pay, on a per-view basis, for a range of programs -- sports events, special interest programs, first-run movies and the like. With the financial backing,

management expertise, and marketing strategies this new generation of cable system owners was able to provide what had once been essentially a small community enterprise (Community Antenna Television, or CATV) began to spread into the major metropolitan centers of the U.S. By 1982, there were some 4,400 cable systems in the U.S. alone,[4] and thirty percent of all U.S. television homes were wired for cable.[5] New subscribers were coming into the system at the rate of 8,000 per day.[6] And, as the market developed, so did a battle for control of franchises in the subscriber-rich major population areas.

Three Developments Crucial to Videotex

In addition to the battle that was taking shape, three other developments were crucial in the ultimate emergence of a major new medium -- videotex -- which forms the basis for a good deal of the expectations that are to be realized in the Information Society. In England, broadcasters developed a means of transmitting textual captions in the vertical blanking interval of the television transmission, making possible readable dialogue to accompany regular programming and providing assistance for the hard of hearing.[7] This seemingly simple technological step is the basis for the delivery of the text-on-television forms that exist today. In the U.S., the Federal Communications Commission was casting an anxious eye at cable television. Mindful of the regulatory morass that had accompanied the emergence of radio in the earlier part of the 20th century (necessitating creation of the F.C.C. in 1932), the regulatory body had imposed a freeze on new television station licenses. When that freeze was lifted, in 1952, cable was becoming firmly established in rural and mountainous areas throughout the U.S. On the one hand, the F.C.C. faced the industry of established over-the-air television station owners. They claimed that the cable operators were nothing more than pirates, stealing

and selling programming that had been developed by networks and local station owners. On the other hand, the F.C.C. was aware of a growing group that saw in cable's multiple channels a vehicle for improved cultural exchange, bettering governmental-electorate relations, and the use of "access" channels to allow divergent groups a voice on the new medium.[8] Thus, in 1972, the F.C.C. promulgated rules and regulations governing the rights of the public to access cable, and in the process the F.C.C. also required new cable systems in the top 100 television markets to provide the capability for two-way, non-voice transmission.[9]

The third development that was to play a major role in the development of videotex is satellite communication. In 1962, Telstar I was launched into space and the first live television program was transmitted from the U.S. to Europe. In 1965, the first synchronous satellite was orbited. The impact of satellites on cable programming became evident in the 1970s when Home Box Office began to place its programming on RAC's Satcom I. Cable systems that wanted to receive the programming were able to do so by erecting satellite receiving dishes at their head-end. By 1977, dishes that once would have cost $150,000 were available for less than $10,000. With the successful satellite transmission of the Ali/Frazier fight from Manila, cable systems had become national and international networks.[10]

Two Futurists Provide the Vision

At this point, the technology had been developed for a new medium: videotex. The F.C.C. regulations requiring the capability for non-voice two-way transmission were in place. And, satellite was able to link not only homes but entire cable systems together over great distances. What remained was for visionaries to put together the pieces of this communication puzzle, to conceptualize what could be done with these emerging technologies, and to

set the stage for the battle for franchises that were to come.

As noted earlier, a number of academics, journalists and telecommunication experts had trumpeted the potential of cable. Some concentrated on the use of the new medium by groups (Feldman, 1970; the Sloan Commission, 1971; Price & Wicklein, 1972). Others saw cable as a means of improving communication between government and the citizenry, and for providing municipal services (Smith, 1970; Gerbner, Gross & Melody, 1973). There are two authors, however, whose works capsulize much of the potential of cable television into sharply etched scenarios. In the year that the F.C.C. promulgated its historic rules and regulation, Robert Stein wrote (1972, p. 11):

> A cable system will provide higher quality color reception . . . cover community events . . . originate special interest programs . . . (offer) everything from X-rated movies to language instruction and sporting events . . . with 2-way cable a subscriber will cast a ballot, order goods from a store, make his own reservations . . . his utility meter will be read . . . each house will have a burglar and fire alarm system. The cashless and checkless society will arrive when his bank account is automatically debited for services rendered over cable.[11]

The second visionary of a new world is Edwin Parker. In 1972, Parker invited us along for an imaginary trip into the future. Part of that journey is reprinted below:

> Sitting at the breakfast table, you might cause the latest headlines to appear on a small display screen simply by touching a key. These headlines may have been written five minutes before. Pointing at a headline might get the story displayed. . . . Suppose you encounter the name of a person you would like to know more about; ask for a biographical sketch. Suppose you do not completely understand . . . an action by the International Monetary Fund; there might be available a short tutorial on some aspect of international economics. . . . Suppose you want to search the want ads or supermarket ads. Instead of shuffling pages, you may just ask to have displayed ads in a particular category. . . . Suppose a high school student wishes to search the equivalent of the local public library for information needed to write a

> term paper. He can quickly search the equivalent of the card catalog and soon be browsing in relevant material.[12]

Three Types of Videotex Services

The new medium that was to provide the means for the services envisioned by both Steiner and Parker is, of course, videotex. The term is a generic label for three types of service in which text is presented on a television screen. The first level of service is called "teletext." This service is transmitted over the air, and is, because of that, considered a broadcast service. It consists of "pages" or "screens" of textual information that is sent in a fast, unbroken cycle. Specially equipped television receivers are able to "grab" a selected page as it cycles by and hold it for the viewer to see. The system is limited to monitoring information, and is not truly "interactive" because the user cannot alter the information that is displayed. Parker evidently had this type of system in mind when he described his "electronic newspaper" and library browsing (Tyler, 1979). The next step up on the videotex ladder is "viewdata." This system's delivery mechanism is telephone. Many more pages can be stored and then accessed by telephone. And, in viewdata systems, transactions are possible, making the system truly "interactive" and "two-way." However, there is a concern with viewdata systems that telephone lines cannot handle the amount and complexity of information that can be handled by systems in which delivery is by coaxial cable. Those kinds of systems -- cable delivered -- are called "videotext." (Note the addition of the second "t".) In videotext systems, information can be more quickly retrieved, the system <u>is</u> interactive, and there is the opportunity for more complex transactions (Real, p. 2). In both the viewdata and videotex systems, transactions are made possible through a simplified version

of a computer keyboard. And, videotex can be made possible, without upgrading, in cable systems constructed since 1972.

The impetus for the spread of videotext came as the result of the development of the technology needed to track subscriber use of channels in pay-per-view systems. The force which drove inclusion of videotex services in newly emerging cable systems was the battle to win the franchises available in major population centers. That battle was initiated by Warner Cable with the entry into the cable franchise market of its system "QUBE."

Availability of Videotex

In 1978, Warner announced that QUBE was being brought into the Warner cable system in Columbus, Ohio. The event was preceded by a full corporate publicity program complete with behind-the-scenes maneuvering, teasing, and denials by Warner.[13] Warner positioned QUBE as a revolution in television, a fully interactive two-way cable system that allowed viewers to "talk back" to the television set. In addition to a range of channels ("like a refrigerator door; all the goodies are inside"),[14] QUBE would lead the way into an era of participatory government, at-home services, and all the possibilities that had been contemplated by Steiner and others. With QUBE at the from of its troops, Warner quickly gained a lead in the battle for franchises in the major markets. Cox Cable followed suit with the development of INDAX (Interactive Data Exchange) in San Diego, California.[15] Knight-Ridder launched their videotex system in Coral Gables, Florida. Numerous experiments, pilots and field tests of the technology soon were undertaken.

At this time, there are an estimated 48 videotex projects underway in some 22 countries, with approximately $500 million either already spent or committed by investors, industry and governments.[16] Some 2,300 information

providers offer a total of 2,000,000 videotex screens in public projects, and it is thought that as many as 2,000 additional videotex terminals are planned in private systems.[17] Some industry spokespersons predict that by the end of this decade there will be between 4,000,000 and 25,000,000 videotex subscribers.[18]

The statistics concerning videotex are impressive, the technology fascinating, and the promise tantalizing. However, there is good reason to doubt that the medium is on the verge of universal availability, much less adoption, and certainly much less dominance. Much of the excitement concerning videotex steams from Warner's efforts to gain a marketplace competitive edge by publicizing QUBE. Warner's innovation is consistently cited, and mistakenly so, in the literature of academics and industry. The publicity and hyperbole generated by Warner concerning QUBE has been accepted as fact, with regrettable misunderstanding of the role of videotex in the near future. As recently as two months ago, Warner began to replace its rudimental key pad in the Columbus, Ohio system with an alphanumeric pad to measure some range of reactions. Even so, as recently as April of this year, QUBE was still being used in an approach that is best suited for game shows, not for any substantial measurement of reaction to any serious topics. An example is its use to gauge public reaction to National Football League picks ("Good?" "Bad?"). It is only available in very limited numbers in some of Warner's systems. Earlier this year, a spokesperson for QUBE in Houston, Texas, warned that two-way was still years away, and that the "component" for two-way did not exist in the Houston system (a "component" was later explained as being "anyone who knows anything about it").[19] Yet, QUBE is the trademark and logo carried on all Warner trucks and equipment in the Houston area. INDAX, which Cox rightfully positions as two-way, is available in two postal zones in San

Diego, California and is being tested elsewhere in the Cox system. At this time, after all the marketing hyperbole is stripped away, the facts are that most videotex systems are in the testing stage, are not two-way, and have not yet proven their attractiveness.

Availability of Venture Capital

Venture capitalists are a cautious group. And, they are now beginning to hedge their bets with regard to cable services. As one such capitalist who formerly was employed by the investment form of A. B. Becker has noted:

> . . . cable operators, egged on by city governments, are promising big city systems with a capacity for 100 or more channels; institutional networks; burglar and fire alarm service; and two-way videotext, shopping and banking services -- complete with basic rates of only $2 a month.
>
> That may win a cable operator a city franchise . . . but he's guaranteed to lose money. Few subscribers are willing to sign up for the extra pay services that produce additional revenue for a cable operator . . .
>
> Ultimately, cable companies will probably survive by eschewing any improvements to their systems, waiting 10 years for a profit, and relying on inflation to pay off their debt with future cheap dollars . . .[20]

High-capacity cable television has been described as "a solution in search of a problem,"[21] and videotext is frequently described at industry conferences as "an industry in search of a market." Even those who hold high hopes for a bright future of a number of telecommunication services are reserved or even pessimistic where videotex is concerned. A Delphi study of expert prediction identified a "high degree of expectation among the experts that new communication services . . . will become a significant share of the total telecommunications demand in the U.S. and foreign markets over the next twenty to thirty years" (Pelton, 1981, p. 180). Yet, those same experts predict that videotex will be in only five to ten percent of U.S. homes by the

end of the century (p. 181). The securities firm of Donaldson, Lufkin & Jenrette, in a study designed to measure the investment attractiveness of videotex, found that "despite all the excitement, we believe that no company should now be considered for investment on the basis of electronic publishing activity for the home market" (p. 1, p. 29). Prestel, so often cited as an example of successful system, has found acceptance not among home users, but among business subscribers, especially travel agents who use the system to schedule travel arrangements for their clients.[22]

As noted earlier, the emergence of the Information Society, in its full potential, rests on availability, adoption, and dominance of videotex. That is the medium on which the scenarios of the future are based. Yet, we can see that in terms of investment attractiveness and industry commitment, videotex is less than a success. Investors are reluctant to commit any more funds to videotex, and the industry is backpedalling as fast as it can.

Let's turn for the moment, however, from availability. The economic climate may suddenly shift, market breakthroughs may occur that cause investment capitalists to reassess their lack of enthusiasm, and cable companies may pass on to yet another generation, more daring than the current one. Let's assume, for the purpose of discussion, that videotex were available. Would potential users, then, find the new medium sufficiently attractive to subscribe to it? That question formed the basis for research conducted in 1981 and 1982.

Videotex Adoption Studies

Focus Groups

In 1981, focus group settings were utilized to identify preliminary indicators of the potential for adoption of videotex.[23] The two groups were

comprised of cable subscribers, those thought best positioned to be adopters of the technology. Six couples each were assigned to each group. In each group, half of the couples were characterized as "traditional couples" (only one of the couple worked outside the home). The other coupes were classified as "career" couples (both worked outside the home).

The couples were selected through randomly generated telephone numbers and offered a modest monetary reward for participation in the study. Upon assembly of the group, participants were given a verbal description of a videotex system, accompanied by graphic depictions and slide of "videotex screens."

The participants clearly saw two types of services emerging. One was "informational." It contained news, weather reports, and local events. The other was perceived as "transactional," and included the "at-home" services (banking, shopping, data exchange). Overall, the system seemed more attractive to career couples than to traditional couples. Career couples seemed more concerned with time and traditional couples more with outside-the-home activities. Career couples found the transactional as well as the informational services attractive -- more so than did the traditional couples.

Among those who found the "at-home' services attractive, those with experience with computers or with "computer-like" technology (automated bank teller machines, or ATMS, specifically) were seemingly more receptive to adoption of at-home banking. Those who shopped by mail seemed more receptive to adoption of at-home shopping (it seemed that direct mail shopping -- one form of "direct response" purchasing -- transferred to at-home shopping, another direct response form).

The overall advantage of videotex was perceived as "convenience." The disadvantage for those who did not find the technology attractive was based on

a fear or distrust of computers. Videotex, for many, was seen as a computer technology. As such, it roused fears of invasion of privacy, depersonalization, and fears of an Orwellian society.

Survey Research

Focus groups are best used to identify preliminary indicators that can then be tested out in larger group settings. In that way, it can be determined if increased confidence in the findings generated by the focus groups is warranted. In early 1982, the findings of the focus group were tested out. Again, a list of randomly generated telephone numbers was used to locate cable subscribers willing to participate in the study. Once located, these individuals were given an over-the-telephone description of a videotex system (a good deal of publicity had been generated in that market about videotex and most respondents seemed to have some concept of such a system). The respondents were then asked to participate in the completion of an interview. A total of 406 interviews were completed in this manner over a two-week period.

Findings

In the interview, respondents were asked a series of questions about past experience with computers and ATMs, direct mail shopping experience, questions designed to elicit the respondents' views of the function of shopping, and their predispositions to adopt, or not adopt, videotex services.[24] The major finding is that nearly 70 percent (65.9%) said they would not utilize at-home shopping through the television, and that nearly 55 percent (54.7%) said they were not interested in at-home banking. With regard to the first service -- at-home shopping -- those who said they would not utilize this service gave a number of reasons. The most often mentioned reasons was that the respondents "liked to shop" (15.7%). That response is supported in the response to

another question which asked respondents "how they think of shopping." Nearly 60 percent (59.2%) said shopping is both a social and a business function. Of those who said they would adopt at-home shopping (34.1%), the overwhelming reason given was "convenience" (18.9%, with "saves time" next at 5.0%).

Of those who found at-home banking unattractive, the most frequently mentioned reason was the "impersonality" of the technology (9.3%). An additional 7.8 percent said they did not see any need for at-home banking, and 7.3 percent expressed an aversion to machinery. For those who did find the service attractive, again the overwhelming reason cited was convenience (35.3%).

Not surprisingly, slightly more than 60 percent (61.2%) of the respondents said they did not know how to use a computer, and nearly that amount (57.3%) said they did not use an ATM.

Three additional areas of inquiry concerned direct mail purchasing, banking by telephone, and videogames in the home. In the case of direct mail purchasing and telephone banking, a relationship between past behavior and future adoption was sought. It was hypothesized that use of one "direct response" medium -- direct mail -- might be an indicator of willingness to utilize another direct response medium -- at-home shopping. Similarly, it was thought that telephone experience with telephone banking might "transfer" to at-home banking through the television. And, it was hypothesized that video games might be a way in which one would gain comfort with the technology. Nearly 90 percent said they do not engage in banking by telephone (only 5.3% said their bank does not offer the service). The most frequently cited reason for not banking that way was the perception that telephone banking does not offer an advantage over banking other ways (26.0%). The second most often given reason was an expressed preference for personally visiting the bank

(22.1%). However, of the small number who do bank by telephone (11.9%), 63.8 percent said they would bank through television. Nearly half (48.6%) of those surveyed said they purchased through direct mail in the past year. However, 65.4 percent of those direct mail shoppers said they are not interested in adopting shop-at-home television services. And, there is no relationship between direct mail purchasing and at-home shopping through television (corrected χ^2 = 0.00651; df = 1; 0.9357). Those with video games were no more likely to adopt at-home TV shopping than those without (40.6% would adopt; 59.4% would not).

Thus, it appears that there may be some transfer from comfort with telephone banking to at-home television banking (although the number of respondents who conduct telephone banking is so small that one must be cautious in trying to generalize). There is apparently no transfer between direct mail purchase and at-home television shopping. And, the presence of video games in the home did not seem to be a predictor of willingness to adopt at-home shopping.

On the other hand, computer experience and ATM experience were clearly predictive. For computer experience and at-home shopping, χ^2 = 21.47161; df = 1; < 0.0000. For computer use and at-home banking, χ^2 = 11.91911; df = 1; < 0.0006. For ATM and shop-at-home, χ^2 = 21.39797; df = 1; < 0.0000. For computer use and at-home banking, χ^2 = 22.48142; df = 1; < 0.0000.

Conclusions

What seems to be happening is that there is, overall, little transfer of interest based on purchase behavior, banking behavior (again, most do not bank by telephone, and it is not prudent to draw a conclusion based on the relatively small number that do telephone banking), or presence of video

games. What does seem to be clear is that those who have achieved a degree of comfort with computer or computer-like technology are much more likely to be predisposed toward adoption of the at-home services. This lack of comfort, on the other hand, overrides all other considerations.

Apparently, there is still a good deal of fear of computers among the population. A majority would not use the at-home services if they were available today. And, those at-home services, for a goodly percentage of respondents, are not perceived as offering sufficient advantage over current methods of banking and shopping. Moreover, for many of those surveyed, shopping -- and for that matter, banking -- are seen as more than mere business transactions. They are seen as both business and social, offering the opportunity to meet with and be in the company of other people, if only on a superficial level. There is an apparent need to socialize that is gratified, for some, by outside-the-home banking and shopping. For others, that is not the case. However, one suspects that for those who gratify a social need through shopping and banking, the at-home services will never fulfill that need.

Videotex and Other Media

What role, then, might we project for videotex at some point in the future? Let us assume that the technology (or information utility) will ultimately be made available, either primarily in teletext form, or perhaps in videotext form. For those who utilize the opportunity, what will be their practice with regard to other media? In short, what effect will videotex have on current media?

Without belaboring this point, it seems apparent from the perspective of the history of the 20th century that new media do not replace old media. In

the second decade of this century, radio gained a foothold in the media marketplace. Yet, newspapers did not disappear. However, the effect of radio on newpapers was to take away the immediacy that had been the province of newspapers. The newspaper industry was forced to reconsider what it could do best, and newspapers came to re-position themselves from breaking news to providing in-depth coverage and analysis of events. Similarly, the introduction of radio caused magazines to provide that which radio could not -- pictures of the news, which gave rise to the great photojournalist publications of the 1930s and 1940s. With the introduction of television, newspapers, magazines, and radio re-examined their functions in the media marketplace.[25] Newspapers continued to provide in-depth coverage. Magazines and radio became highly specialized media, targeted to segments of the mass audience rather than attempting to appeal to all the members of that audience. A similar effect is likely when videotex emerges, is adopted and seeks its place in the media market. In this case, however, the situation is somewhat different. Videotex is thus far only providing services that are all available elsewhere. It seems it will likely be utilized as an adjunct to other media until such time as it develops services that are distinctly its own. However, even at that point, it is not likely that videotex will replace other media. As Daniel Boorstein has noted:

> Momentous technological changes commonly are neither displacive nor reversible. Technological innovations, instead of displacing earlier devices, actually tend to create new roles for the devices which they might at first seem to displace. When the telephone was introduced in the later nineteenth century, some people assumed that it would make the postman obsolete . . . similarly, when wireless and then radio appeared, some wise people thought that these would spell the end of the telephone; when television came in, many were the voices lamenting the death of radio; and we still hear Cassandras solemnly telling us that television is the death of the book. But in our own time we have had an opportunity to observe how and why

> such forecasts are ill-founded. We have seen television . . . provide new roles for the radio, and most recently we have seen how both have created new roles (or led to the new flourishing of older roles) for the newspaper press. And all these have created newly urgent roles for the book.[26]

It may well be, then, that the effect of videotex on other media will be to create new roles for those media.

Summation

This study looked at the Information Society from two perspectives: changes in the labor market, and the new medium of videotex. It concludes, based on secondary and primary research, that in some regards the Information Society has arrived. In other ways, it has not. Certainly, the majority of the U.S. work force can be assumed to be working in information-related activities. However, a decade after the grandiose predictions set forth for videotex, it has not gained the widespread availability predicted, much less diffusion. To date, no realistic marketplace trial of videotex has taken place. QUBE is not a videotex system; it is a pay-per-view system with a remote channel selector equipped with minimal response capabilities. INDAX has yet to prove itself in the marketplace. The services currently available on videotex systems that are in limited use are already available through other sources. Many of these alternative ways of gathering information or conducting transactions are not perceived overwhelmingly by consumers as having advantages over tried and proven methods. While an impressive percentage of potential consumers seem predisposed to adopt videotex, some forty years of mass media research has shown the difficulty in linking experimental predispositions or attitudes to ultimate behavior in field studies. In short, the utility may be attractive, but there is serious question as to whether that attractiveness is sufficiently strong to break established media

habits, overcome fears associated with computers and computer technology, and break down reluctance to actually pay for the service.

The research shows that while the society may increasingly be characterized by labor shifts to information-related industries, predictions of universal adoption -- or even an adoption by a majority of citizens -- or videotex are optimistic to such a degree that they may be called naive.

A Need for A New Research Perspective

In a sense, research into various facets of the Information Society suffers from a problem of perspective. We find ourselves today making the mistakes of the past by concentrating on the potential of media and the design of "persuasive" messages rather than on the audience itself. It is a problem that has plagued communication research since that branch of social science emerged. Early on, we concentrated on "media effects" study, even though we should have known since the Erie County studies that something was amiss with our approach. Despite the failure to link attitudes and behavior, we plow ahead, making predictions about the future shape and form of our society and continuing to look down the barrel of media as though communication is something someone does to someone else. Learning that media have limited and subtle effects in terms of political behavior, product purchase, and opinion change has not caused us to re-examine our perspectives on media. To the contrary, it seems to have simply refocused and redirected the passe media effects approach. Instead of talking of effects on population subgroups, the discussion now centers on entire societies.

In fact, the predictions of a "wired nation" of a decade ago have become the blue sky notions of an Information Society today. We may someday see a society which is characterized by the dominance of home terminals being used

for a range of activities provided by various other media and utilities today. However, to say that such a day is on the horizon is to presuppose that we know much more about the effects of unknown as well las known variables than we do. It is charming mythology. Is it prophecy? Maybe. But based on the information available at this time, it is more charming than factual.

FOOTNOTES

[1] Pelton, Joseph N., "The Future of Telecommunications: A Delphi Study," Journal of Communication, Volume 31, No. 1, Winter, 1981.

[2] Phillips, Mary Alice Mayer, CATV: A History of Community Antenna Television, Evanston, Illinois: Northwestern University Press, 1972, p. 7.

[3] "Cable Television: Pay Now, Fly Later," Barron's, November 8, 1976, p. 3.

[4] Broadcasting, January 4, 1982, p. 82.

[5] Ibid.

[6] Ibid.

[7] Gross, Lynne Schafer, The New Television Technologies, Dubuque, Iowa: Wm. C. Brown Company, 1983, p. 112.

[8] In New York, the Center for Alternative Media, under the direction of Red Burns, was such a group. Other "coalitions" of video enthusiasts, church organizations, and philanthropic groups sprang up across the country, such as the "Access Coalition," in Columbus, Ohio, and similar organizations in East Lansing, Michigan, and elsewhere.

[9] U.S. Law Week, April 2, 1979, LW 4334: 47.

[10] Gross, p. 48.

[11] Steiner, Robert, Visions of Cablevision, Cincinnati, The Stephen H. Wilder Foundation, 1973, p. II.

[12] Parker, Edwin, "Technological Change and the Mass Media," Handbook of Communication, ed. by Ithiel de Sola Pool and Frederick W. Frey, Chicago: Rand McNally College Publishing Company, 1973, p. 622.

[13] See "Cable in Columbus, Can It Succeed?" by John Ledingham and Todd Henning, Columbus Monthly, march, 1978 for a behind-the-scenes look into the corporate shenanigans of Warner Cable.

[14] Ibid, sidebar.

[15] The author was involved in field testing of the INDAX concept.

[16] Butler, Cox & Partners, The Future of Videotex, Butler, Cox & Partners Unlimited, London, England, 1981, p. 2.

[17] Ibid.

[18] Donaldson, Lufkin & Jenrette, Electronic Publishing in the Home of the 1980s, Donaldson, Lufkin & Jenrette Securities Corporation, New York, 1981, p. 29. Also see Business Week, June 29, 1981, pp. 74-83 for a more

conservative estimate.

19 Interview with graduate class at University of Houston, March, 1983, by QUBE's Public Relations Director for Houston, Texas.

20 Hoffman, Tony. Quote appears in Associated Press story, "Are Cable's Improvements Worth the Additional Fee?", Houston Post, April 28, 1983, p. 13.

21 A remark oft-repeated at cable conferences.

22 While individuals could do this for themselves, they are not doing so in appreciable numbers. For a review of this and other British systems, see Michael Real, Videotex and Education: A Review of British Developments, San Diego, California, The Center for Communications, San Diego State University, 1981.

23 See Ledingham, John and David Dozier, "What Cable Television Subscribers Think About Two-Way Interactive Television Services," article accepted for publication by Mass Comm. Review and expected to be published in the Summer of 1983, for a complete review.

24 One of the sponsoring organizations for the research was Fingerhutt, the direct mail "house." Their interest in finding out if direct mail shoppers are more disposed than non-direct mail shoppers to shop-at-home, prompted inclusion of the issue.

25 It has become somewhat popular to talk of declining newspaper circulation. While the daily newspaper have suffered some decline in circulation, however, that has been offset by increases in circulation among weekly newspapers. In 1972, for example, there were 1,761 dailies with a total circulation of 62.5 million. In 1982, there were 1,710 dailies with a total of slightly less circulation, 62.4 mil. However, in 1972, there were 7,567 weeklies with a total circulation of 30.5 million. By 1982, there were 7,626 weeklies, not an impressive increase. But, the circulation of weeklies had increased to 44.3 million. Figures reported in U.S.A. Today, May 11, 1983, p. 1.

26 Boorstein, Daniel, Harpers, March, 1978, p. 46.

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APPENDIX A

A number of sources were used for this compilation. However, four are of particular use as introductions to the technology and predicted scope of the field:

> Electronic Publishing in the Home of the 1980s, Donaldson, Lufkin & Jenrette Securities Corporation, New York, New York, 1981;
>
> The Future of Videotex, Butler, Cox & Partners Limited, London, England, 1981;
>
> Introduction to and Issues with Videotex: Implications for Marketing, W. Wayne Talarzyk & Robert E. Widing II, The Ohio State University, Columbus, Ohio, 1982; and,
>
> Videotex '81, Proceedings of the International Conference & Exhibition, Toronto, Canada, 1981.

Britain: Two services are currently available in the United Kingdom under the label "CEEFAX" (see facts), offered by the British Broadcasting Company. CEEFAX is a public, non-profit service financed by television license fees levied against British television owners. Broadcast over the air, CEEFAX is a Teletext system, providing some 250 pages on two channels (BBC 1 and BBC 2). A third service is offered by the Independent Broadcasting Authority (IBA). The IBA system, dubbed "ORACLE," has about 375 pages, and is run as a profitmaking operation, with some 15% of its pages devoted to advertising messages. The main information services of the BBC and IBA systems are news, weather and travel, television and radio programs listings, sub-titling for the hard-of-hearing, and the aforementioned advertisements. The number of television sets capable of receiving Teletext is more than 150,000. The Teletext set is used for these services on an average of two hours per week.

Britain also has a Viewdata-type service, entitled "Prestel." As the name implies, the system was developed by the British Post Office. It is acknowledged to be the world's first public Videotex system, and currently is linked to some 10,0900 sets with some 500-600 new subscribers coming on-line

each month. Because the average Prestel set is used by two persons, the viewership is estimated at 20,000. The principal users of Prestel are businesspersons, particularly travel agents, and the average use per day is nine minutes. Some 135 information providers lease pages on Prestel, providing about 180,000 pages of information.

France: The French offer to Videotex systems: "Antiope" and "Titan." Antiope is a Teletext system, described as "more sophisticated" than the British CEEFAX and ORACLE services, with "greater flexibility and adaptability . . . and better graphics." The Viewdata-type system, Titan, is being developed by the French government, which hopes to have 30,000,000 Titan terminals in French homes before the end of the decade. Several trials and tests are also underway, including Teletel, a transaction-capable system; the Electronic Directory, Viewdata, which replaces the telephone book as well as offering interactive services; Mass Facsimile, a terminal targeted to small businesses, which can be used to generate hard copy for Viewdata-type systems; the Telewriter, which will allow interactive graphics and handwritten messages to be delivered on telephone lines, and which is designed for teleconferences and technical and commercial discussion; and, the Smart Card, a plastic identification card to provide security for users of transactional Viewdata systems.

Germany: The Deutsche Bundespost is awaiting the completion of field trials before introducing the "Btx," a subscriber-direct system utilizing telephone delivery or a closed circuit data network. Essentially, it appears to allow home subscribers access to computer centers on a timeshare or per usage basis.

The Netherlands: A test of a public Viewdata system is underway in the Netherlands using software acquired form British Telecommunications (formerly

the British postal system). Several thousand modems have been purchased, and a search structure designed to retrieve stored information. For test period, no transactional services will be attempted.

Switzerland: Since November, 1979, the Swiss Standard Telephon und Radio AG (STR) has been conducting a pilot trial of two services of adopted Prestel technology. The Viewdata-type service is available in both German and French (after the introductory page, the user selects a language preference). Subscribers to date are businesses and government users. In 1983, the Swiss plan a test service with 2,000 subscribers of a system capable of subscriber-accessed information and user-entered information, and possibly alphageometric and alphaphotographic capability.

Canada: Canada is marketing both Teletext and Viewdata systems under the umbrella label, "Telidon." The Canadian government has invested heavily in the Videotex developments, pouring in more than $36,000,000. The technology is described as "clearly superior to the British offerings, and somewhat more refined than Antiope . . . the Cadillac of Videotex systems." Currently, the Canadian government is supporting field trials, with the plan to "transfer government-developed technology into Canadian business and industry." Eight field trials are underway among seven trial operators in six provinces for home users, business subscribers, users in public places, and educational users. The different delivery systems involved are satellite, broadcast (interval blanking), cable, paired wires (telephonic technology), optic fiber, and ordinary telephone lines. Information providers include publishers, retailers, banks, government agencies, educational institutions, and others.

Japan: Japan's CAPTAIN (Character and Pattern Telephone Access Information Network) system was an experimental service conducted from December, 1979 to March, 1981. As the name implies, the system is of the Viewdata type. It

was developed and initiated by the Ministry of Posts and Telecommunications, and Nippon Telegraph and Telephone Public Corporation. Information was supplied by 199 information providers and featured full video and alphanumeric transmissions (through a camera and microphone placed in the user's home). The experiment utilized 1,100 user terminals, with 7900 set aside for residential use, 100 terminals for business, 150 terminals for information providers, and 50 for "system development and exhibition." The system has been used mainly for information access. A second experimental service began in August, 1981. One interesting service of the Viewdata-type system is that it allows users to print hard copy of the information appearing on the CAPTAIN system screen.

The United States: In the U.S., a number of experiments, pilots, and market tests of Teletext, Viewdata, and Videotext are taking place. In Miami, Florida, Oak Industries is testing a Teletext system, while similar experiments are underway in Los Angeles, California, and starting up in La Jolla, California. Videotex services are being offered by CompuServe, the Source, Dow Jones, Warner/Amex (QUBE), Viewtron, and INDAX (Cox Cable). CompuServe is involved in providing access to the Associated Press, eleven major newspapers, and also providing an electronic mail service, as well as a variety of financial services, an energy audit system, and entertainment services. Electronic retailing is expected soon. Electronic banking is already offered in two Tennessee cities. The Source offers service throughout the United States, drawing on information provided by more than 2,000 libraries, including United Press International, and the New York Times. Some of the other services include airline schedules, teleshopping, electronic mail, local information, and job and employment searches. Dow Jones is involved in Viewdata and Videotext projects as well as Teletext via radio channels. Dow Jones has invested

some $12,000,000 in Videotex development. The single service reported in the literature is the News Retrieval Service, which is fully interactive, featuring key work searching. News is available from The Wall Street Journal and the Dow Jones News Service. Information available includes surveys and financial reports. Users are required to purchase their own home terminal and modem. QUBE is Warner/Amex's entry into the Videotex sweepstakes. Announced with a great deal of ballyhoo in Columbus, Ohio, the system has thus far failed to live up to its advance billing. While some experiments have taken place in limited public opinion polling, and limited transactional tests, QUBE is still perhaps best described as a "response" system. It appears that QUBE may have been developed more for its ability to attract big-city franchises than for its so-called "two-way" capability. Most of the services that Warner/Amex promised to provide have yet to be delivered. Viewtron is a Viewdata-type system developed and managed by AT&T and Knight-Ridder, and being tested in Coral Gables, Florida. Viewtron provides items such as news, weather and sports information, interactive shopping, banking, and classified advertising. Viewtron is said to have organized "an impressive list of national and local information providers and advertisers." INDAX is the brainchild of Cox Cable Communications, Inc.. INDAX is currently offered in one postal zone of San Diego, California as a test of the fully interactive, two-way system. Cox is under franchise agreement requirement to offer INDAX in its newly acquired franchise cities of Omaha, Nebraska and New Orleans, Louisiana. Services offered include national and international news, local information, weather and sports reports, at-home banking, and at-home shopping. A limited number of information providers are participating in the San Diego test. One major impediment to development of the system was the eighteen-month wait while a supplier developed an acceptable hand-held key pad

for subscriber use. Others involved in the INDAX development include Fingerhutt, the Minnesota-based direct mail house, and HomServe, a Connecticut-based venture capital organization.

A number of other systems and projects are underway or plan to be in the near future. They include:

> Mead Nexus and Lexus, formed by the Mead Corporation. Lexus provides secondary research material and Nexus is designed to serve the legal profession.
>
> Instant Update is targeted to the agricultural community providing market prices, weather information, and agricultural extension-type services.
>
> Green-Thumb: Sponsored by the United States Department of Agriculture, this Viewdata system was tested in two Kentucky counties with the University of Kentucky College of Agriculture, and with researchers form Stanford University.
>
> Various projects by Chase Manhattan Bank, Citibank, Chemical Bank, and United California Bank, along with participation in Viewtron and INDAX.
>
> The Manitoba Telephone System and Bell Canada are involved in IDA (a consumer-oriented View data system), and ELIE (a Viewdata system targeted to rural and farm users). Also, telephonic interests in Canada are involved in Grassroots (another farm-directed system) and Project Vista (a consumer-oriented system).